



Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-446



Common Infrared Countermeasure (CIRCM)

As of FY 2019 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

~~This document contains information that may be exempt from mandatory disclosure under the FOIA.~~

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~~(U//FOUO)~~ **Sensitivity Originator**

Organization: PM Aircraft Survivability Equipment (ASE)

Organization Email:

Organization Phone: 256-842-7850

The Aggregate Report Sensitivity has been defined as ~~(U//FOUO)~~ with the following explanation: The Aggregate Report Sensitivity has been defined as ~~(U//FOUO)~~ with the following explanation: Derived from Security Classification Guide for U.S. Army Version of Aircraft Survivability Equipment, dated 29 March 2016.

Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance
ACAT - Acquisition Category
ADM - Acquisition Decision Memorandum
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
\$B - Billions of Dollars
BA - Budget Authority/Budget Activity
Blk - Block
BY - Base Year
CAPE - Cost Assessment and Program Evaluation
CARD - Cost Analysis Requirements Description
CDD - Capability Development Document
CLIN - Contract Line Item Number
CPD - Capability Production Document
CY - Calendar Year
DAB - Defense Acquisition Board
DAE - Defense Acquisition Executive
DAMIR - Defense Acquisition Management Information Retrieval
DoD - Department of Defense
DSN - Defense Switched Network
EMD - Engineering and Manufacturing Development
EVM - Earned Value Management
FOC - Full Operational Capability
FMS - Foreign Military Sales
FRP - Full Rate Production
FY - Fiscal Year
FYDP - Future Years Defense Program
ICE - Independent Cost Estimate
IOC - Initial Operational Capability
Inc - Increment
JROC - Joint Requirements Oversight Council
\$K - Thousands of Dollars
KPP - Key Performance Parameter
LRIP - Low Rate Initial Production
\$M - Millions of Dollars
MDA - Milestone Decision Authority
MDAP - Major Defense Acquisition Program
MILCON - Military Construction
N/A - Not Applicable
O&M - Operations and Maintenance
ORD - Operational Requirements Document
OSD - Office of the Secretary of Defense
O&S - Operating and Support
PAUC - Program Acquisition Unit Cost

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PB - President's Budget
PE - Program Element
PEO - Program Executive Officer
PM - Program Manager
POE - Program Office Estimate
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
SCP - Service Cost Position
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting
U.S. - United States
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

Program Information

Program Name

Common Infrared Countermeasure (CIRCM)

DoD Component

Army

Responsible Office

(b)(6)

References

SAR Baseline (Development Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated July 08, 2016

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated July 8, 2016

Mission and Description

The Common Infrared Countermeasure (CIRCM), an ACAT IC MDAP, is the next generation lightweight, laser-based infrared countermeasure component that will interface with both the Army's Common Missile Warning System and future missile warning systems (MWS) to defeat current and emerging missile threats to target rotary-wing, tilt-rotor and small fixed-wing aircraft across the DoD. CIRCM receives hand-off from the MWS and employs a pointing and tracking system to track incoming missiles. CIRCM jams the missile by using laser energy, thus degrading the tracking capability of the missile and causing it to miss the aircraft. CIRCM is utilizing Open Systems Architecture which allows flexibility with software and hardware refreshes to keep pace with future threats.

~~(U//FOUO)~~ Executive Summary

~~(U//FOUO)~~ Program Highlights Since Last Report

~~(U//FOUO)~~ The PEO Intelligence, Electronic Warfare and Sensors (IEW&S) certifies the CIRCM requirements are stable and funding is adequate for the program to execute within its baseline cost parameters. The PEO IEW&S reports an increase to the CIRCM performance and schedule risks since the last SAR. The increased program risks are a result of poor prime/subcontractor performance. Specifically, late system deliveries, sub-tier manufacturing and quality problems and higher than anticipated reliability failures coupled with slow fix timeliness delayed reliability growth testing and caused a two-month slip to Milestone C production decision since the last SAR and a \$22.9M cost overrun.

~~(U//FOUO)~~ To address the increased risks, the Government issued a delinquency notice in June of 2017 to Northrup Grumman Systems Corporation (NGSC) for failing to meet hardware delivery requirements, to adequately manage subcontractor performance and address reliability root causes and timeliness of fixes, as well as for failing to comply with contract terms to report complete and accurate financial and master schedule reporting information. As part of a comprehensive corrective action plan, the PEO established a Reliability Executive Steering Committee (ESC) with NGSC leaders, key user stakeholders, the Defense Contract Management Agency (DCMA), the Army Materiel Systems Analysis Activity and outside experts to address subcontractor quality performance problems and to address reliability failure analysis, fixes and verification. From June through November 2017, the ESC made significant gains in correcting the high number of unplanned reliability failures impacting quality and manufacturing at the sub-tier level and reliability growth. In order to demonstrate confidence in the reliability improvements, a Reliability Characterization Test (RCT) was conducted in December of 2017. The CIRCM system successfully passed the test providing increased confidence in the fixes and improved system reliability growth to ensure the program could enter and exit the RDT event successfully. However, the comprehensive efforts caused a cost overrun and schedule slip to the program. The CIRCM program is within its APB cost, schedule and performance parameters. The program office is aggressively managing the prime contractor and key subcontractors with technical in-plant oversight by DCMA to ensure sub-tier quality control and manufacturing workmanship processes continue to remain stable and improve.

~~(U//FOUO)~~ The previously reported issues associated with the Integrated Threat Warning Lab facility repairs and Missile and Space Intelligence Center threat model updates were resolved. The reported delays in hardware deliveries and reliability failure problems persisted in this reporting period and were addressed as part of the comprehensive reliability fixes and corrective action. In regard to the cost overrun, the six month EMD contract extension modification addressed the under-estimated software development previously reported and incorporated the reliability improvements into hardware assets for testing. No fee was added as part of the cost overrun settlement and it was internally funded by the \$15.1M forfeited technical incentive fee of the original EMD contract and program test efficiencies. The contract modification did not reset the cost or schedule baseline given the short remaining duration until EMD completion. Further, the extension included a monetized risk matrix to be funded internally by NGSC to offset and mitigate further repeated performance problems. As part of NGSC's failures, DCMA, in July of 2017, found NGSC inaccurately reported its program schedule and financial data. A Level III Corrective Action Report was approved in November of 2017 resulting in the disapproval of the NGSC's Earned Value Management System. This disapproval resulted in a two-percent withhold penalty on all payments until the system is corrected and full implementation verified.

~~(U//FOUO)~~ Given the schedule slip, the program shifted focus to key test events and production readiness. Based on the RCT results mentioned, the CIRCM system successfully accrued 581 of 581 planned test hours, providing confidence in the reliability improvements with no degradation in system performance. This event served as a risk reduction test to ensure the program was ready to enter RDT in February 2018. Additionally, the CIRCM system was installed on a UH-60M aircraft and completed 68.9 hours of contractor flight testing as further risk reduction in September 2017. CIRCM hardware deliveries are on track to support all upcoming test event activities and schedule to include reliability demonstration, Government flight and free flight missile tests. A series of production readiness reviews were established to include all key suppliers in the U.S. and Leonardo in United Kingdom (all sub-tier suppliers). DCMA notified NGSC that it needs to further improve sub-tier supplier manufacturing management in order to avoid similar or past reported problems. The program office used outside experts to evaluate and identify further actions to improve production readiness. Finally, on December 4, 2017 the annual

Configuration Steering Board approved the program with no recommended changes in requirements or funding. Although the program experienced reliability problems, schedule slip and cost overruns, the program is back on track and moving toward critical test events. The deliberate actions taken provided and demonstrated improvements made to reliability provided greater confidence in the program to accomplish the test schedule to meeting system performance requirements.

(U) Sub-tier manufacturing processes and quality control remain risk concerns and actions are being taken to include oversight to improve production readiness. The program is adequately funded to meet its cost, schedule and performance parameters based on the contract extension and cost overrun settlement.

(U) There are no significant software-related issues with this program at this time.

History of Significant Developments Since Program Initiation

History of Significant Developments Since Program Initiation	
Date	Significant Development Description
December 2011	CIRCM received an ADM approval to enter Technology Demonstration Phase at Milestone A with two vendors to foster competition and reduce risk.
July 2014	An ADM approved release of the request for proposal for CIRCM EMD and directed the Army to return for a Milestone B DAB prior to award of the EMD contract and down select to one vendor.
August 2015	The DAE signed the Milestone B ADM authorizing entry into EMD and certifying all applicable provisions of section 2366b, title 10, U.S. Code
July 2016	The DAE approved the CIRCM Development APB. The APB established program threshold and objective values for the minimum number of cost, schedule and performance attributes that describe the program over its life cycle.
November 2017	The DAE signed an ADM that delegated MDA for CIRCM to the Secretary of the Army, and designated CIRCM as an ACAT IC Program.
November 2017	The U.S. Government and Northrop Grumman completed negotiations on the contract modification for the \$22.9M cost over-run and a six month contract extension.

Threshold Breaches

APB Breaches

Schedule		<input type="checkbox"/>
Performance		<input type="checkbox"/>
Cost	RDT&E	<input type="checkbox"/>
	Procurement	<input type="checkbox"/>
	MILCON	<input type="checkbox"/>
	Acq O&M	<input type="checkbox"/>
O&S Cost		<input type="checkbox"/>
Unit Cost	PAUC	<input type="checkbox"/>
	APUC	<input type="checkbox"/>

Nunn-McCurdy Breaches

Current UCR Baseline

PAUC	None
APUC	None

Original UCR Baseline

PAUC	None
APUC	None

(b)(3)(C) Schedule



(b)(3):10 USC § 130

Schedule Events				
Events	SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Current Estimate
MDD	Jul 2009	Jul 2009	Jul 2009	Jul 2009
Milestone A	Dec 2011	Dec 2011	Dec 2011	Dec 2011
Preliminary Design Review	Jul 2013	Jul 2013	Jul 2013	Jul 2013
Milestone B	Aug 2015	Aug 2015	Aug 2015	Aug 2015
Critical Design Review	Oct 2016	Oct 2016	Oct 2017	Oct 2016

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Change Explanations

(Ch-1) The Milestone C Current Estimate changed from

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due to

previously reported issues associated with the Integrated Threat Warning Lab facility repairs and Missile and Space Intelligence Center threat model updates which were resolved. The reported delays in hardware deliveries and reliability failure problems persisted in this reporting period and were addressed as part of the comprehensive reliability fixes and corrective action taken.

Acronyms and Abbreviations

FUE - First Unit Equipped

IOT&E - Initial Operational Test and Evaluation

MDD - Materiel Development Decision

Performance

Performance Characteristics				
SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Demonstrated Performance	Current Estimate
Sustainment Materiel Availability				
65%	65%	63%	TBD	65%
Sustainment Operational Availability				
98%	98%	95%	TBD	98%

Classified Performance information is provided in the classified annex to this submission.

Requirements Reference

JROCM approved CDD dated May 1, 2014

Change Explanations

None

Track to Budget

RDT&E

Appn	BA	PE	
Army	2040	05	0604270A
	Project	Name	
	VU8	CIRCM	(Sunk)
Army	2040	05	0605035A
	Project	Name	
	EB4	CIRCM	

Procurement

Appn	BA	PE	
Army	2031	04	0210108A
	Line Item	Name	
	AZ3537	CIRCM	

Acq O&M

Appn	BA	PE	
Army	2020	04	0702806A
	Subactivity Group	Name	
	435	Acquisition and Management Support: Aircraft Survivability Equipment	(Shared)

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 2015 \$M			BY 2015 \$M	TY \$M		
	SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Development Estimate	Current APB Development Objective	Current Estimate
RDT&E	754.6	754.6	830.1	736.9	799.7	799.7	768.9
Procurement	1782.5	1782.5	1960.8	1781.1	2263.3	2263.3	2257.9
Flyaway	--	--	--	1420.2	--	--	1817.0
Recurring	--	--	--	1392.5	--	--	1781.2
Non Recurring	--	--	--	27.7	--	--	35.8
Support	--	--	--	360.9	--	--	440.9
Other Support	--	--	--	354.5	--	--	433.5
Initial Spares	--	--	--	6.4	--	--	7.4
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	--	20.6	0.0	0.0	25.6
Total	2537.1	2537.1	N/A	2538.6	3063.0	3063.0	3052.4

Current APB Cost Estimate Reference

OSD CAPE ICE dated August 01, 2015

Cost Notes

In accordance with Section 842 of the National Defense Authorization Act for FY 2017, which amended title 10 U.S.C. § 2334, the Director of Cost Assessment and Program Evaluation, and the Secretary of the military department concerned or the head of the Defense Agency concerned, must issue guidance requiring a discussion of risk, the potential impacts of risk on program costs and approaches to mitigate risk in cost estimates for MDAPs and major subprograms. The information required by the guidance is to be reported in each SAR. This guidance is not yet available; therefore, the information on cost risk is not contained in this SAR.

Total Quantity			
Quantity	SAR Baseline Development Estimate	Current APB Development	Current Estimate
RDT&E	48	48	48
Procurement	1076	1076	1076
Total	1124	1124	1124

Quantity Notes

The CIRCM unit of measure is the B-Kit; A-Kit costs are included in Non End Item Recurring Flyaway costs.

(UNFOU) Cost and Funding**(UNFOU) Funding Summary**

Appropriation Summary									
FY 2019 President's Budget / December 2017 SAR (TY\$ M)									
Appropriation	Prior	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
RDT&E	511.1	105.8	51.2	46.4	27.4	1.5	1.5	24.0	768.9
Procurement	0.0	6.3	36.8	112.5	118.6	148.0	166.9	1668.8	2257.9
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	1.5	1.6	1.6	1.6	1.7	17.6	25.6
PB 2019 Total	511.1	112.1	89.5	160.5	147.6	151.1	170.1	1710.4	3052.4
PB 2018 Total	514.3	112.1	104.9	182.4	161.1	150.0	171.8	1697.6	3094.2
Delta	-3.2	0.0	-15.4	-21.9	-13.5	1.1	-1.7	12.8	-41.8

(UNFOU) Funding Notes

This CIRCM SAR does not include Overseas Contingency Operations (OCO) funding received from FY 2015 through FY 2017 and OCO funding requested in FY 2018 in the FY 2018 PB in direct support of the Advanced Threat Warning CIRCM.

Beginning in FY 2019, the Army realigned direct civilian pay costs from RDT&E and Procurement investment accounts to O&M to provide additional transparency and auditability.

Quantity Summary										
FY 2019 President's Budget / December 2017 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Development	48	0	0	0	0	0	0	0	0	48
Production	0	0	0	24	48	48	48	60	848	1076
PB 2019 Total	48	0	0	24	48	48	48	60	848	1124
PB 2018 Total	48	0	0	24	48	48	48	60	848	1124
Delta	0	0	0	0	0	0	0	0	0	0

Cost and Funding

Annual Funding By Appropriation

Annual Funding							
2040 RDT&E Research, Development, Test, and Evaluation, Army							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2010	--	--	--	--	--	--	25.5
2011	--	--	--	--	--	--	4.6
2012	--	--	--	--	--	--	101.9
2013	--	--	--	--	--	--	39.5
2014	--	--	--	--	--	--	92.5
2015	--	--	--	--	--	--	97.6
2016	--	--	--	--	--	--	69.7
2017	--	--	--	--	--	--	79.8
2018	--	--	--	--	--	--	105.8
2019	--	--	--	--	--	--	51.2
2020	--	--	--	--	--	--	46.4

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Subtotal

(b)(3):10 USC § 130

Annual Funding							
2040 RDT&E Research, Development, Test, and Evaluation, Army							
Fiscal Year	Quantity	BY 2015 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2010	--	--	--	--	--	--	27.1
2011	--	--	--	--	--	--	4.8
2012	--	--	--	--	--	--	104.5
2013	--	--	--	--	--	--	39.8
2014	--	--	--	--	--	--	91.5
2015	--	--	--	--	--	--	95.1
2016	--	--	--	--	--	--	67.3
2017	--	--	--	--	--	--	75.7
2018	--	--	--	--	--	--	98.9
2019	--	--	--	--	--	--	47.2
(b)(3):10 USC § 130							
Subtotal	(b)(3):10 USC § 130						

(b)(3):10 USC § 130

Annual Funding							
2031 Procurement Aircraft Procurement, Army							
Fiscal Year	Quantity	BY 2015 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program

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Subtotal

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The CIRCM unit of measure is the B-Kit; A-Kit costs are included in Non End Item Recurring Flyaway costs.

Annual Funding		
2020 Acq O&M Operation and Maintenance, Army		
Fiscal Year	TY \$M	
	Total Program	
2019		1.5
2020		1.6
2021		1.6
2022		1.6
2023		1.7
2024		1.7
2025		1.8
2026		1.8
2027		1.9
2028		1.9
2029		2.0
2030		2.0
2031		2.1
2032		2.2
2033		0.2
Subtotal		25.6

Annual Funding		
2020 Acq O&M Operation and Maintenance, Army		
Fiscal Year	BY 2015 \$M	
	Total Program	
2019		1.4
2020		1.4
2021		1.4
2022		1.4
2023		1.5
2024		1.4
2025		1.5
2026		1.4
2027		1.5
2028		1.5
2029		1.5
2030		1.5
2031		1.5
2032		1.6
2033		0.1
Subtotal		20.6

~~(S//FOUO)~~ Low Rate Initial Production~~(S//FOUO)~~

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	8/25/2015	8/25/2015
Approved Quantity	37	37
Reference	Milestone B ADM	Milestone B ADM
(b)(3):10 USC § 130		

(S//FOUO) Foreign Military Sales**(S//FOUO) Notes**

(b)(3):10 USC § 130

While there are currently no FMS cases (active or in process) at this point in the program.

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If FMS are requested before the successful completion of Initial Operational Test & Evaluation, the PM will request approval, via a Yockey Waiver, from USD(Acquisition & Sustainment), as required, prior to FMS, commitment to sell or agreement to license for export.

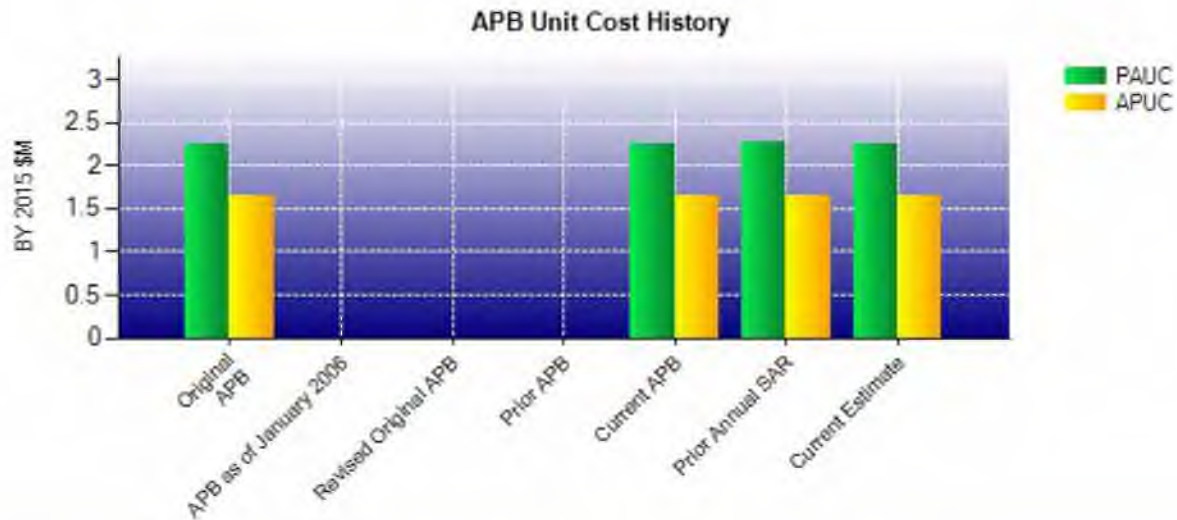
Nuclear Costs

None

(U//FOUO) Unit Cost

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2015 \$M	BY 2015 \$M	% Change
	Current UCR Baseline (Jul 2016 APB)	Current Estimate (Dec 2017 SAR)	
Program Acquisition Unit Cost			
Cost	2537.1	2538.6	
Quantity	1124	1124	
Unit Cost	2.257	2.259	+0.09
Average Procurement Unit Cost			
Cost	1782.5	1781.1	
Quantity	1076	1076	
Unit Cost	1.657	1.655	-0.12

Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2015 \$M	BY 2015 \$M	% Change
	Original UCR Baseline (Jul 2016 APB)	Current Estimate (Dec 2017 SAR)	
Program Acquisition Unit Cost			
Cost	2537.1	2538.6	
Quantity	1124	1124	
Unit Cost	2.257	2.259	+0.09
Average Procurement Unit Cost			
Cost	1782.5	1781.1	
Quantity	1076	1076	
Unit Cost	1.657	1.655	-0.12



APB Unit Cost History					
Item	Date	BY 2015 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Jul 2016	2.257	1.657	2.725	2.103
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	N/A	N/A	N/A	N/A	N/A
Current APB	Jul 2016	2.257	1.657	2.725	2.103
Prior Annual SAR	Dec 2016	2.278	1.652	2.753	2.106
Current Estimate	Dec 2017	2.259	1.655	2.716	2.098

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY \$M)									
PAUC Development Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
2.725	-0.012	0.000	0.000	0.000	0.025	0.000	-0.022	-0.009	2.716

Current SAR Baseline to Current Estimate (TY \$M)									
Initial APUC Development Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
2.103	-0.010	0.000	0.000	0.000	0.027	0.000	-0.023	-0.006	2.098

(b)(3)(C)

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone A	N/A	Dec 2011	N/A	Dec 2011
Milestone B	N/A	Aug 2015	N/A	Aug 2015
(b)(3):10 USC § 130				
Total Cost (TY \$M)	N/A	3063.0	N/A	3052.4
Total Quantity	N/A	1124	N/A	1124
PAUC	N/A	2.725	N/A	2.716

(b)(3)(C)

Cost Variance

Summary TY \$M					
Item	RDT&E	Procurement	MILCON	Acq O&M	Total
SAR Baseline (Development Estimate)	799.7	2263.3	--	--	3063.0
Previous Changes					
Economic	+0.2	+5.6	--	--	+5.8
Quantity	--	--	--	--	--
Schedule	--	--	--	--	--
Engineering	--	--	--	--	--
Estimating	+28.6	+7.0	--	--	+35.6
Other	--	--	--	--	--
Support	--	-10.2	--	--	-10.2
Subtotal	+28.8	+2.4	--	--	+31.2
Current Changes					
Economic	-3.7	-15.9	--	--	-19.6
Quantity	--	--	--	--	--
Schedule	--	--	--	--	--
Engineering	--	--	--	--	--
Estimating	-55.9	+22.4	--	+25.6	-7.9
Other	--	--	--	--	--
Support	--	-14.3	--	--	-14.3
Subtotal	-59.6	-7.8	--	+25.6	-41.8
Total Changes	-30.8	-5.4	--	+25.6	-10.6
CE - Cost Variance	768.9	2257.9	--	25.6	3052.4
CE - Cost & Funding	768.9	2257.9	--	25.6	3052.4

Summary BY 2015 \$M					
Item	RDT&E	Procurement	MILCON	Acq O&M	Total
SAR Baseline (Development Estimate)	754.6	1782.5	--	--	2537.1
Previous Changes					
Economic	--	--	--	--	--
Quantity	--	--	--	--	--
Schedule	--	--	--	--	--
Engineering	--	--	--	--	--
Estimating	+28.9	+4.7	--	--	+33.6
Other	--	--	--	--	--
Support	--	-10.0	--	--	-10.0
Subtotal	+28.9	-5.3	--	--	+23.6
Current Changes					
Economic	--	--	--	--	--
Quantity	--	--	--	--	--
Schedule	--	--	--	--	--
Engineering	--	--	--	--	--
Estimating	-46.6	+12.5	--	+20.6	-13.5
Other	--	--	--	--	--
Support	--	-8.6	--	--	-8.6
Subtotal	-46.6	+3.9	--	+20.6	-22.1
Total Changes	-17.7	-1.4	--	+20.6	+1.5
CE - Cost Variance	736.9	1781.1	--	20.6	2538.6
CE - Cost & Funding	736.9	1781.1	--	20.6	2538.6

Previous Estimate: December 2016

RDT&E	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-3.7
Revised estimate to align with FY 2019 PB. (Estimating)	-48.1	-57.4
Adjustment for current and prior escalation. (Estimating)	+1.5	+1.5
RDT&E Subtotal	-46.6	-59.6

Procurement	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-15.9
Revised estimate to align with FY 2019 PB. (Estimating)	+12.5	+22.4
Decrease in Other Support to reflect revised estimating methodology used to calculate training costs. (Support)	-8.7	-14.3
Increase in Initial Spares to align with FY 2019 PB. (Support)	+0.1	0.0
Procurement Subtotal	+3.9	-7.8

Acq O&M	\$M	
Current Change Explanations	Base Year	Then Year
Revised estimate to reflect the Army's realignment of direct civilian pay costs from RDT&E and Procurement investment accounts to O&M to provide additional transparency and auditability. (Estimating)	+20.6	+25.6
Acq O&M Subtotal	+20.6	+25.6

(U//FOUO) Contracts**(U//FOUO) Contract Identification**

Appropriation: RDT&E
Contract Name: CIRCM EMD
Contractor: Northrop Grumman Systems Corporation
Contractor Location: 600 Hicks Road
 Rolling Meadows, IL 60008-1015
Contract Number: W58RGZ-15-C-0067
Contract Type: Cost Plus Fixed Fee (CPFF), Fixed Price Incentive(Firm Target) (FPIF), Firm Fixed Price (FFP)
Award Date: August 28, 2015
Definitization Date: August 28, 2015

(U//FOUO) Contract Price

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
140.2	142.7	71	149.5	170.7	71	153.6	157.5

(U//FOUO) Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to negotiated changes on the contract.

The difference between the current target price and the estimated price at completion (contractor and PM) is based on cost overrun.

(U//FOUO) Contract Variance

Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2017)	-13.5	-5.1
Previous Cumulative Variances	-4.4	-1.2
Net Change	-9.1	-3.9

(U//FOUO) Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to continued overruns induced by changes to A-Kit, B-Kit and system requirements.

The unfavorable net change in the schedule variance is due to delays in completing planned B-Kit non-recurring engineering work.

Notes

The EMD contract contains FPIF CLINs for the procurement of production representative hardware in support of test and integration activities. Cost Plus Fixed Fee CLINs consist of all non-recurring engineering and development activities. The FFP CLIN consists of the procurement of the software Technical Data Package.

The EMD contract with Northrop Grumman Systems Corporation (NGSC) experienced a cost overrun and schedule delays associated with increased software development costs, late B-Kit (System Processor Unit, Lasers and Pointer/Tracker) deliveries, insufficient reliability growth, higher than anticipated reliability failures and increased time required to verify full implementation of fixes. The six month EMD contract modification and extension addressed the under-estimated software development and incorporated the reliability improvements into hardware assets for testing. No fee was added as part of the cost overrun settlement and it was internally funded by the forfeited \$15.1M technical incentive fee of the original EMD contract and program test efficiencies. The contract modification did not reset the cost or schedule baseline given the short remaining duration of EMD. Further, the extension included a monetized risk matrix to be internally funded by NGSC to offset and mitigate any further repeated performance problems.

In July 2017, the Defense Management Contract Agency found NGSC inaccurately reported its program schedule and financial data. A Level III Corrective Action Report was approved in November of 2017 resulting in the disapproval of the NGSC's Earned Value Management System. This disapproval resulted in a two-percent withhold penalty on all payments until the system is corrected and full implementation verified.

(S//FOUO) Deliveries and Expenditures

(S//FOUO) Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
(S//FOUO) Development	35	29	48	60.42%
(S//FOUO) Production	0	0	1076	0.00%
Total Program Quantity Delivered	35	29	1124	2.58%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	3052.4	Years Appropriated	9
Expended to Date	444.3	Percent Years Appropriated	23.68%
Percent Expended	14.56%	Appropriated to Date	623.2
Total Funding Years	38	Percent Appropriated	20.42%

The above data is current as of February 12, 2018.

(U//FOUO) Operating and Support Cost**(U//FOUO) Cost Estimate Details**

Date of Estimate: May 26, 2017
 Source of Estimate: POE
 Quantity to Sustain: 1076
 Unit of Measure: B-Kit
 Service Life per Unit: 15.00 Years

(b)(3):10 USC § 130

(U//FOUO)

The CIRCM B-Kit is the mission kit required to achieve near spherical coverage for an aircraft. The B-Kit consists of two Pointer/Trackers, two Lasers and one System Processor Unit.

Total acquisition quantity (1,124) includes the production quantity that will be fielded/sustained (1,076) plus 48 RDT&E-funded systems that are not production representative units and will not be fielded or sustained.

(U//FOUO) Sustainment Strategy

Interim Contractor Support is currently planned to sustain CIRCM from (b)(3):10 USC § 130. The long term sustainment strategy will be informed by a Business Case Analysis (BCA) of Product Support Alternatives that will identify which alternative support options provide optimum mission performance given cost and other constraints.

The BCA is currently ongoing and is estimated to complete in 2nd Quarter FY 2018.

(U//FOUO) Antecedent Information

Advanced Threat Infrared Countermeasure (ATIRCM) is the antecedent system for CIRCM. The ATIRCM estimates are based on actual contract cost. ATIRCM completed production and fielding of 120 B-Kits.

(U//FOUO) Annual O&S Costs BY2015 \$K		
Cost Element	CIRCM Average Annual Cost Per B-Kit	ATIRCM (Antecedent) Average Annual Cost Per B-Kit
Unit-Level Manpower	17.000	65.000
Unit Operations	--	39.000
Maintenance	14.000	21.000
Sustaining Support	11.000	73.000
Continuing System Improvements	2.000	46.000
Indirect Support	--	--
Other	--	--
Total	44.000	244.000

Item	[REDACTED] Total O&S Cost \$M			
	CIRCM			ATIRCM (Antecedent)
	Current Development APB Objective/Threshold		Current Estimate	
Base Year	702.8	773.1	710.6	116.7
Then Year	1072.7	N/A	1087.8	0.0

Disposal Cost is included in the Operating and Support Cost of the current APB objective and threshold for this program.

Equation to Translate Annual Cost to Total Cost

Total O&S Cost (\$710.6M) = number of B-Kits (1,076) x System Service Life (15 years) x Average Annual O&S Cost (\$44.0K) (BY 2015\$)

O&S Cost Variance		
Category	BY 2015 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2016 SAR	710.6	
Programmatic/Planning Factors	0.0	
Cost Estimating Methodology	0.0	
Cost Data Update	0.0	
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Other	0.0	
Total Changes	0.0	
Current Estimate	710.6	

[REDACTED] Disposal Estimate Details

Date of Estimate: May 26, 2017
Source of Estimate: POE
Disposal/Demilitarization Total Cost (BY 2015 \$M): Total costs for disposal of all B-Kit are 7.6

Disposal cost estimate is based on cost per pound of B-Kit.